

## A NEW SPECIES OF COCCOPHAGUS WITH A TABLE OF THE HOST RELATIONS OF THOSE SPECIES OF THE GENUS KNOWN TO THE WRITER

By L. O. HOWARD

*Coccophagus* is a widespread and important internal parasite of certain scale-insects, and is practically confined to the non-Diaspinæ. Were it not for some of the extraordinary results of rearings carried on at the parasite laboratory at Melrose Highlands under the direction of Mr. W. F. Fiske and of others at the boll-weevil laboratory at Dallas under the direction of Mr. W. D. Hunter, I would state that the species of this genus are invariably primary parasites, but such statements as this in the light of these recent investigations must be more guarded. The probabilities, however, point towards invariable primary parasitism. The present species under consideration is the largest of the genus so far described and is quite distinct from its congeners.

### SUBFAMILY APHELININÆ HOWARD

#### Genus *Coccophagus* Westwood

*Coccophagus albicoxa*, n. sp. *Female*.—Length 2.6 mm., expanse 5.4 mm., greatest width of forewings 0.6 mm. General color shining black; apical half of mesoscutellum lemon-yellow with a central shade of the black descending somewhat into the yellow; all femora black; front and middle coxæ black, hind coxæ yellowish white; edge of metapleurum caudad of spiracle yellow; middle and hind tibiæ black, front tibiæ only dusky; front tarsi brownish; middle and hind tarsi light yellow; antennæ black, tip of pedicel brown. Mesonotum very faintly shagreened. Apical bristles of mesoscutellum very long; mesopleurum perfectly smooth, shining; abdomen smooth, shining, very faintly shagreened, much more faintly than mesonotum; wing veins dark brown; wings hyaline, iridescent. One female reared by H. J. Quayle from *Physokermes insignicola* received from Lampoc, California.

U. S. N. M. Type No. 12170.

The following table indicates the host relations of such species of the genus as are known to the writer:

<i>Parasites</i>	<i>Hosts</i>
<i>Coccophagus lecanii</i> Fitch	<i>Lecanium quercitronis</i> Fitch
	<i>Lecanium quercifex</i> Fitch
	<i>Pulvinaria innumerabilis</i> Rathv.
	<i>Pulvinaria acericola</i> (Walsh & Riley)
	<i>Lecanium pruinum</i> Coq.
	<i>Lecanium persicæ</i> (Fab.)
	<i>Lecanium</i> on plum
	<i>Phenacoccus aceris</i> (Sign.)
	<i>Coccus hesperidum</i> Linn.
<i>Coccophagus fraternus</i> How.	<i>Lecanium persicæ</i> Fab.

<i>Coccophagus cognatus</i> How.	<i>Coccus hesperidum</i> Linn. <i>Saissetia nigra</i> (Nietn.) <i>Lecanium</i> sp. on plum <i>Lecanium persicæ</i> Fab.
<i>Coccophagus immaculatus</i> How.	<i>Eriococcus azaleæ</i> Comst. <i>Pulvinaria bigeloviae</i> Ckll. <i>Saissetia hemisphærica</i> (Targ.) <i>Lecanium</i> sp. on <i>Pinus australis</i> <i>Coccus hesperidum</i> Linn. <i>Lecanium</i> spp. from California <i>Pseudococcus destructor</i> Comst. <i>Ceroplastes floridensis</i> Comst. <i>Lecanium tulipiferae</i> Cook. <i>Pulvinaria</i> on plum <i>Pulvinaria</i> on <i>Sullengia</i> <i>Pulvinaria innumerabilis</i> Rathv. <i>Lecanium</i> on plum <i>Lecanium</i> sp. on <i>Adenostoma</i> <i>Lecanium</i> sp. on <i>Aretostaphylos</i> <i>Lecanium armeniacum</i> Craw. <i>Icerya purchasi</i> Mask.
<i>Coccophagus californicus</i> How.	<i>Chrysomphalus aurantii</i> (Mask.) <i>Coccus hesperidum</i> Linn. <i>Saissetia oleæ</i> (Bern.)
<i>Coccophagus lunulatus</i> How.	<i>Kermes</i> sp. on <i>Quercus agrifolia</i> <i>Kermes nigropunctatus</i> Ehrh. & Ckll.
<i>Coccophagus ochraceus</i> How.	<i>Lecanium</i> sp. on <i>Adenostoma fasciculatum</i>
<i>Coccophagus orientalis</i> How.	<i>Ceroplastes actiniformis</i> Green <i>Coccus viridis</i> (Green) <i>Saissetia hemispherica</i> (Targ.) <i>Pseudococcus longispinus</i> Targ.
<i>Coccophagus flavescens</i> How.	<i>Saissetia hemisphærica</i> (Targ.)
<i>Coccophagus fletcheri</i> How.	<i>Eulecanium fletcheri</i> (Ckll.)
<i>Coccophagus singuliventris</i> Girault	<i>Lecanium nigrofasciatum</i> Perg.
<i>Coccophagus subochraceus</i> How.	<i>Lecanium</i> on <i>Leucospermum</i>
<i>Coccophagus longifasciatus</i> How.	<i>Lecanium nigra</i> (Nietn.)
<i>Coccophagus howardi</i> Masi	<i>Philippia oleæ</i> <i>Ceroplastes rusci</i>
<i>Coccophagus niger</i> Masi	<i>Lichtensia viburni</i>
<i>Coccophagus albicoxa</i> How.	<i>Physokermes insignicola</i> (Craw.)

**The Rufous Scale at Key West, Florida.**—In August, 1909, the writer collected citrus leaves at Key West, Florida, infested with a scale which, from a casual examination, was taken to be the California Red Scale (*Chrysomphalus aurantii* Mask.). Recently in looking over this material it was found that the insect is the Rufous-Scale (*Selenaspidus articulatus* Morg.). This citrus pest apparently has not been recorded heretofore from the United States. In the report of the Florida Agricultural Experiment Station for the fiscal year ending June 30, 1907, Dr. E. W. Berger presents a good half-tone illustration of a leaf infested by this insect and notes that it was sent to him for identification from St. Croix, Danish West Indies.

A. W. MORRILL.